

UC Davis

White Papers

Title

Aligning California's Transportation Funding with Its Climate Policies

Permalink

<https://escholarship.org/uc/item/9jp6d597>

Authors

Sciara, Gian-Claudia
Lee, Amy

Publication Date

2018

Aligning California's Transportation Funding with Its Climate Policies

January 2018

A White Paper from the National Center for
Sustainable Transportation

Gian-Claudia Sciara, University of California, Davis, and University
of Texas at Austin

Amy Lee, University of California, Davis



National Center
for Sustainable
Transportation

ITS **UCDAVIS**
INSTITUTE OF TRANSPORTATION STUDIES

About the National Center for Sustainable Transportation

The National Center for Sustainable Transportation is a consortium of leading universities committed to advancing an environmentally sustainable transportation system through cutting-edge research, direct policy engagement, and education of our future leaders. Consortium members include: University of California, Davis; University of California, Riverside; University of Southern California; California State University, Long Beach; Georgia Institute of Technology; and University of Vermont. More information can be found at: ncst.ucdavis.edu.

U.S. Department of Transportation (USDOT) Disclaimer

The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the information presented herein. This document is disseminated under the sponsorship of the United States Department of Transportation's University Transportation Centers program, in the interest of information exchange. The U.S. Government assumes no liability for the contents or use thereof.

Acknowledgments

This study was funded by a grant from the National Center for Sustainable Transportation (NCST), supported by USDOT through the University Transportation Centers program. The authors would like to thank the NCST and USDOT for their support of university-based research in transportation, and especially for the funding provided in support of this project.

The NCST would also like to thank reviewers at the UC Davis Institute for Transportation Studies (ITS-Davis) for providing feedback on this white paper.



Aligning California's Transportation Funding with Its Climate Policies

A National Center for Sustainable Transportation White Paper

January 2018

Gian-Claudia Sciara, Institute of Transportation Studies, University of California, Davis; and
School of Architecture, University of Texas at Austin

Amy Lee, Institute of Transportation Studies, University of California, Davis



[page left intentionally blank]

TABLE OF CONTENTS

ABSTRACT	ii
Introduction	1
Climate Action Through Transportation in California.....	2
Applying Sustainability Principles to Transportation investments	4
Generating and Allocating Transport Revenue in California	5
Sources of State Transportation Revenue: The View from Chart C	6
A Course Correction Towards Fiscal Sustainability with Allegiance to Inherited Allocations	8
The Disposition of State Transportation Revenue: The View from Chart C	9
Potential Reforms	14
Allocate more state transportation revenues to MPOs.	14
Reward regional performance on near-term GHG reduction.	14
Develop and use sustainability performance criteria for broader allocation.	15
Allocate state revenues to incentivize sustainable locals sales tax measures.	16
Recasting Transportation Revenue Allocation: Benefits for California and Other States	17
Appendix A. The Regional View: Funding Sources Used by Regions	19
Appendix B. The Local View	22
References	24

Aligning California's Transportation Funding with Its Climate Policies

ABSTRACT

California has established itself as a leader in efforts to reduce greenhouse gas (GHG) emissions from transportation. At the same time, the state has not reflected its ambitious policies for GHG reduction and climate action in its practices for allocating state transportation funding. This white paper reviews the complex systems through which California generates and allocates state revenue for transportation investment. It finds that the state's framework for funding transportation is disconnected from its climate goals. The paper also suggests preliminary steps for revising this framework to reinforce GHG reduction goals. Such recommendations are particularly salient given the state's recently completed study of road user charges as an alternative transportation revenue source. Implementation of road charges – or any other new or revised transportation revenue source – would need to address the disposition of revenues generated. The paper argues that California should use any such opportunity to align the distribution of state transportation dollars with its climate objectives, not fall back on status quo allocation practices.

Introduction

California's efforts to reduce greenhouse gas (GHG) emissions are well known. Over the last two decades the state has made numerous policy commitments to lowering GHG emissions overall and in particular to targeting the large share of GHGs generated by transportation. State policies have encouraged production of low- and zero-emissions motor vehicles, required reductions in the carbon content of motor fuels, and worked to reshape urban and suburban development so as to lessen residents' dependence on automobile travel. Many of these initiatives have attracted national attention.

Less is known, however, about whether or how California's practices for distributing state transportation funding reflect its GHG reduction and climate action objectives. California's framework for allocating state level transportation resources is notoriously complex, captured in a wall-sized flow diagram known affectionately as Chart C. Given that state transportation funding has historically followed a boom-and-bust pattern, concerns about how to raise revenue for transportation often trump discussions of how those resources are or should be distributed.

This paper reviews the complex rules and processes through which California allocates the revenue collected by the state to invest in transportation. It analyzes how the state distributes transportation revenue among different claimants, asking whether the state's distributional approaches reinforce its climate goals. Theories of sustainability as well as the state's climate goals are held against state transportation policy commitments.

Our work inventories the various transportation revenue sources authorized and collected by the state of California, along with the statutory and administrative provisions conditioning distribution of those funds. We classify those provisions according to the policy principles they reflect, making clear how policy concerns are reflected in transportation funding flows. (In technical appendices, we provide another view of state transportation resources through a more bottoms-up approach that accounts for transportation expenditures, using Fiscal Year (FY) 2015-2016 state financial data. We also provide a view of local expenditures in the appendix.)

This exploration reveals that the state framework for funding transportation is largely disconnected from its transportation-related climate goals and that its ambitious climate objectives are not fully reflected in its practices for allocating transportation revenue. The state's recent transportation funding bill, the Road Repair and Accountability Act of 2017, known as SB 1, includes some encouraging changes. Still, these are modest and influential only at the margins. Overall, the bill relies more on inherited statutory formulae for distributing funds than on any new framework.

This paper is organized first to discuss California's policy commitments to climate action. Next it discusses the growing challenge of GHGs from transport, contextualizes advances in specific criteria for defining transportation sustainability and for evaluating whether funding flows and

policy commitments support it. Third, it contextualizes both of these trends in California, describing efforts to address that while looking at new revenue sources and to examine road charges as a source of transportation funding in California and discusses how this presents an opportunity to address revenue allocation as well, and describes California's policy commitments to address this. Next it traces the current flows of transportation funding in the state and the policies through which they are allocated, showing how existing frameworks are overly complex, lack transparency, unstable, and do not serve GHG reduction. It describes these flows for the FY 2016-2017, and it also includes description of new funding flows coming through the Road Repair and Accountability Act (SB 1), passed in 2017. Finally, it offers several practice-based recommendations for shifting state allocation policies and practices to better support GHG reduction, in California as well as in other states that would do so.

Climate Action Through Transportation in California

California has been working since the 2000s to understand and address climate concerns across various sectors of the state's economy, and state elected officials have made significant commitments to reducing transportation-related GHGs. In 2006, the legislature passed the Global Warming Solutions Act (also called AB 32), which committed California to lowering GHG emissions to 1990 levels by 2020, the amount that most climate scientists agree is necessary to stem global warming from GHGs. A companion executive order targeted reducing GHGs to 80 percent below 1990 levels by 2050 (Calif. Exec. Order No. S-3-05). The state has added aggressive interim goals as well. Governor Jerry Brown called for reducing GHGs emissions to 40 percent below 1990 levels by 2030, as well as reducing petroleum use to 50 percent below 2015 levels by 2030 (Calif. Exec. Order No. B-30-15). The targets reflect scientific consensus about the GHG reductions needed to keep global warming at below 2 degrees Celsius.

State policies have aimed to wrest GHG reductions from transportation in particular, reflecting the sector's outsized contribution to GHGs. Transportation is responsible for about 27 percent of GHGs nationally (U.S. Environmental Protection Agency, 2017). In California, the sector produces 37 percent of the state's GHGs, the largest contributor of GHGs emissions. While transportation-related GHGs had declined from 2008 through 2013, the state's most recent emissions inventory shows they have since been increasing, a circumstance attributed to population growth, lower fuel prices, and gains in the economy and employment (California Air Resources Board, 2017).

California has adopted a three-pronged approach to reduce transportation-related GHG emissions. First, the state has various policies in place that seek to make motor vehicles more efficient. Second, several state initiatives work to reduce the carbon content of motor fuels. A third approach aims to reduce the amount of driving that Californians do by changing underlying development patterns in the state. This goal is embodied in the state's Sustainable Communities and Climate Protection Act, or SB 375, and is of direct interest to our inquiry into

whether and how state expenditures on transportation infrastructure further California's GHG reduction goals.

State policymakers have increasingly acknowledged that reducing vehicle miles of travel (VMT) logged by Californians must figure centrally in state efforts to reduce transportation GHGs. Until SB 375, California had traditionally targeted vehicle and fuel technologies to reduce carbon emissions, for instance by "establishing emissions and performance standards for new vehicles and fuels, setting mandates and sales requirements for advanced technologies, developing pilot programs, and implementing incentive and other programs to accelerate technology deployment." California Air Resources Board (ARB) analysis indicates, however, that cleaning the vehicle fleet will not suffice to meet the 40 percent GHG reduction targets for 2030, and that significantly reducing driving must accompany California's technology-focused GHG approach. The agency's analysis suggests that, by 2050, California will need absolute reductions in total light-duty VMT of 15 percent below its 2050 baseline estimates if it is to meet its climate policy goals. Additionally, the agency projects state climate and petroleum reduction goals would require that growth in light-duty VMT not exceed 5 percent by 2030; however, its existing 2030 baseline projections show that total statewide light-duty VMT is set to rise 11 percent over current levels by 2030 (California Air Resources Board, 2015).

Passed in 2008, SB 375 aims at attenuating automobile reliance in the state and at changing development patterns to do so. The law asks the state's metropolitan regions to develop visions for future land use and transportation investment that will allow Californians to use private vehicles less and take more trips via transit, cycling, and walking. The state's four largest regions are tasked with reducing GHG emissions 7 or 8 percent below 2005 per capita levels by the year 2020, and meeting more ambitious targets by 2035. To do so, each region includes a new component in its regional transportation plan: a "Sustainable Communities Strategy" (SCS), which outlines transportation investments and land use strategies that together would reduce Californian's reliance on driving.

The state has also taken other steps to ensure that its GHG reduction goals filter through other state transportation activities. The California Department of Transportation (Caltrans) adopted its own Director's Sustainability Policy (DP-33) in 2015 to support the state's existing sustainability goals (Dougherty, 2015). The policy outlines specific principles to guide Caltrans' activities in support of the state's signature climate laws, including AB 32, SB 375, SB 391 (which calls for the statewide California Transportation Plan to reflect GHG emissions reductions goals), and SB 743 (which provides for a new metric for transportation impacts that addresses GHG emissions reductions rather than vehicle delay under the California Environmental Quality Act).

In sum, California has adopted ambitious goals for reducing transportation-related GHGs and making mobility more sustainable. It has fixed GHG targets and acknowledged the driving reductions needed to achieve them. An important but unexamined question, however, is whether and how the allocation of state transportation revenue reflects these ambitions. When

the state invests in transportation infrastructure, in other words, are resources distributed in ways that support the necessary transition to a lower-VMT future? This paper takes up this question.

We open for discussion how sustainability principles could figure more explicitly into choices about how to allocate transportation revenue sources in California, and by extension in other states too. We observe that California climate policies in transportation have not yet reached into the actual statutes that direct state transportation funds. We also observe that the case now being explored in California for potentially using road charges in lieu of fuel taxes to fund transportation could open a major window for rethinking how California allocates transportation revenue. Any new revenue source – such as a road use charge -- would inevitably require new state legislation to enable the collection, allocation, and expenditures of associated revenues. Developing the statutory framework for allocating revenue from a road charge could be the starting place to better incorporate state objectives for GHG reductions and climate action into that framework. Bringing sustainability in to future investments is important, as it is fundamentally different from what we do now.

Applying Sustainability Principles to Transportation investments

Many public sector transportation organizations have begun to orient their activities in order to enhance sustainability. One recent federal report considers sustainability as an “organizing principle for transportation agencies” and observes that transportation officials do not see sustainability as “just another thing.” Instead, “[i]t’s the thing. Considering the triple bottom line helps agencies ensure that their programs contribute to a strong economy, a healthy environment, and a vigorous society in a manner that garners public support” (Booz Allen Hamilton, 2014; National Cooperative Highway Research Program, 2014).

Sustainability can be an organizing principle not only for transportation agency activities but more fundamentally how it uses resources to prioritize its activities. How should we begin to assess practices for allocating transportation funding in light of broad sustainability concerns and California’s own specific climate goals? We propose a framework that both draws on accepted principles in established sustainability theory and that considers the reduction of VMT as a primary criterion for funding allocation.

Well-recognized schools of thought have operationalized criteria for assessing sustainability; their application to transportation finance and policy is a starting point for our framework. The Brundtland Commission’s foundational definition noted that sustainable development would meet “the needs of the present without compromising the ability of future generations to meet their own needs”; reflect “the ability of the biosphere to absorb the effects of human activities”; and also aim for decentralized governance, with local needs managed largely by local authorities connected to the urban poor and neighborhood groups (World Commission on Environment and Development, 1987). Subsequent work argued that sustainability should

deliver a “triple bottom line,” protecting the environment, enhancing the economy, and also improving equitable economic opportunity and social justice (Elkington, 1994; Campbell, 1996).

Subsequent critiques have argued for environmental health as the ultimate bottom line, as neither the economy nor social well-being can flourish without it. California climate policy reflects this focus in the transportation arena; state policies suggest that sustainable transportation requires more than simply meeting environmental or air quality requirements, as stipulated by laws like the National Environmental Policy Act or the Clean Air Act Amendments. Reducing congestion, and investing in public transit, bicycling, and walking modes are also necessary but insufficient for achieving more sustainable transportation systems. Instead, California’s approach puts new demands on transportation agencies to mitigate transportation’s GHG emissions and climate impacts for the long term, rethinking conventional investment patterns and changing mobility patterns and travel behavior along the way.

Principles of “fiscal sustainability” drawn from public finance also deserve consideration in the allocation of California transportation resources. Fiscal sustainability requires that revenue and budgeting practices support the “ability to operate [public services] over the long term without reducing standards of life below those currently enjoyed and even to improve the standard.” These principles, invoked most often in debates surrounding public debt, discourage borrowing to meet current needs when future generations will be left paying for services provided in the past. They raise questions about whether fiscal actions now “reduce the capacity of future generations to live at least as well or better than we do now” (Mikesell, 201X, p 2-3, 139). Fiscal sustainability implies that present infrastructure investment choices should emphasize transportation systems that improve quality of life in the future and reflect objectives to reduce GHGs and mitigate climate.

Generating and Allocating Transport Revenue in California

Assessment of whether California’s practices for allocating state transportation revenue reflect its climate and sustainability objectives must first consider the sources of state transportation revenue and any statutory provisions associated with their expenditure. Here, we describe the chief revenue sources supporting transportation in California and trace the flow of those revenues through the primary state funding accounts to specific recipients and for expenditure on specific modes, systems, and services. We consider this picture critically, with an eye toward understanding whether the current distributional patterns reflect the state’s sustainability policies and practices in the ways we have defined.

A comprehensive picture of California’s transportation revenues and their disposition requires information from various sources. We focus first and foremost on Caltrans’ “Chart C”, which tracks the flow of all *state-generated* transportation revenues. Our primary interest lies in whether the state allocates its own-source revenues following its climate and GHG objectives.

Yet, we add to this picture two accounting resources that illuminate the flow of federal and local transportation resources in the state. California’s Federal State Transportation Improvement Program (FSTIP) captures both federal funds spent in the state *and* matching state and local revenues, and the Local Streets and Roads Report from the State Controller’s Office, which accounts more explicitly for local transportation revenues. Different government entities produce these resources, and each accounts for revenues and available funds in different ways; this prevents us from triangulating the three to create a neat picture.

Sources of State Transportation Revenue: The View from Chart C

California relies on a fairly traditional set of taxes and fees to fund transportation investments; these include per-gallon gasoline and diesel fuel excise taxes, sales taxes on motor fuels, and an assortment of vehicle fees. This section inventories these own-source transportation revenues and discusses 2017 legislative changes, under SB 1, that have eliminated the complex and fiscally tumultuous “fuel tax swap” enacted in 2010, and that have increased and expanded state transportation revenues. The state also completed a recent pilot study of mileage-based fees as a potential replacement for its fuel tax.

Base state excise tax on gasoline

The gasoline base state excise tax is a per gallon tax levied on each gallon of gasoline sold. The tax had been set at 18-cents per gallon (cpg) since 1993, and proceeds have traditionally flowed to the Highway User Tax Account (HUTA) for road investment by state and local governments. The recent SB 1 legislation raised the tax to 30-cpg and has indexed it to inflation for the very first time. Increments of revenue from this 12-cent increase will flow to a new “Road Maintenance and Rehabilitation Account” and be shared evenly between the state and local governments after funds are set aside for a number of special programs designed to incentivize local government behavior. Proceeds from the initial 18-cpg tax will follow existing statutory formulae. (See Tables 1 and 2.)

Fuel tax swap / gasoline price-based excise tax

The state has collected an additional per-gallon excise tax against gasoline sales since the Fuel Tax Swap of 2010. The per-gallon rate of the tax has been adjusted each year to mimic the state sales and use tax on gasoline sales, a tax which the Fuel Tax Swap had partially eliminated. The rate was 18 cents per gallon in FY 2014-15, and 12 cents per gallon in FY 2015-16. Proceeds are first used to replace or “backfill” truck weight fees that have been diverted to the State General Fund (see below); remaining balances are allocated to local road funds, the State Transportation Improvement Program (STIP), and the State Highway Operation and Protection Program (SHOPP).

Statewide sales and use taxes on gasoline

The state of California collects 7.5 percent sales and use tax on a broad array of goods and services. The Fuel Tax Swap enacted by the state legislature in 2010 eliminated most of the

state sales and use tax on gasoline (Wachs, Brown & Garrett, 2016), reducing the rate for gasoline sales to 2.25 percent. The SB 1 legislation of 2017 left this rate unchanged. Only a portion (0.25 percent) of the gasoline sales tax goes toward transportation expenditures. The state collects these funds but is required by law to return the proceeds to counties for their Local Transportation Funds and to allocate the funds to each county by the share of the statewide total collected in each county. Thus, as the dollar value of gasoline sales in a county increase, that county's take-home share of sales tax revenue also increases. This "return to source" distributional principle is disconnected from state climate policy and goals to reduce automobile reliance. Potentially rewarding counties that have accommodated growing transportation demand largely with driving.

Base state excise tax on diesel

Following the Fuel Tax Swap, the rate of this tax has been adjusted each year since 2010. It was 11-cpg in FY 2014-15, for example, 13-cpg in FY 2015-16, and 16-cpg in FY 2016-17. (Fuel Tax Swap provisions for revenue neutrality among revenue instruments have required annual adjustment to the tax rate to offset any increase in revenues from the diesel *sales tax*.) Diesel excise tax revenues are deposited to the Highway Users Tax Account (HUTA); the first six cents are apportioned to local road funds and the remaining balance to the State Highway Account. The transportation funding law SB 1 increased the tax to 36-cpg in 2017 and indexes it to inflation as of 2020.

Statewide sales and use tax on diesel

Whereas the 2010 Fuel Tax Swap eliminated most of the state sales and use tax on gasoline, it retained and even increased the tax for diesel fuel sales. In 2017, the state levied 9.25 percent sales and use tax on diesel, with 6.5 percent of that allocated to transportation purposes, mostly to transit agencies. SB 1 legislation increased the diesel sales and use tax to 13 percent.

Truck weight fees

The California Department of Motor Vehicles assesses weight fees based on gross weights of commercial vehicles. Revenues are transferred to the Transportation Debt Service Fund to reimburse the State General Fund for debt service on voter-approved transportation bonds.

Motor vehicle license fee

This fee collects 0.65 percent of a vehicle's market value, as calculated by the state Department of Motor Vehicles (DMV), and its revenues support the DMV's regulatory functions.

Motor vehicle registration and driver license fees

These include \$58 of motor vehicle registration fees, \$52 of off-highway vehicle registration fees, and \$33 of driver license fees. Revenues flow to the Motor Vehicle Account and largely fund the California Highway Patrol rather than explicit infrastructure investments.

Transportation improvement fee

The 2017 funding legislation added a new annual vehicle charge, based on the value of the vehicle. Fee proceeds are designated specifically to fund transportation improvements, with set asides for public transit and congested corridors, and remaining funds flowing to the new Road Maintenance Rehabilitation Account.

Zero-emission vehicle registration fee

SB 1 funding legislation also created a new Road Improvement Fee assessed for registration of zero-emission vehicles. Fee proceeds flow exclusively to the Road Maintenance Rehabilitation Account, again exclusively for transportation expenditures.

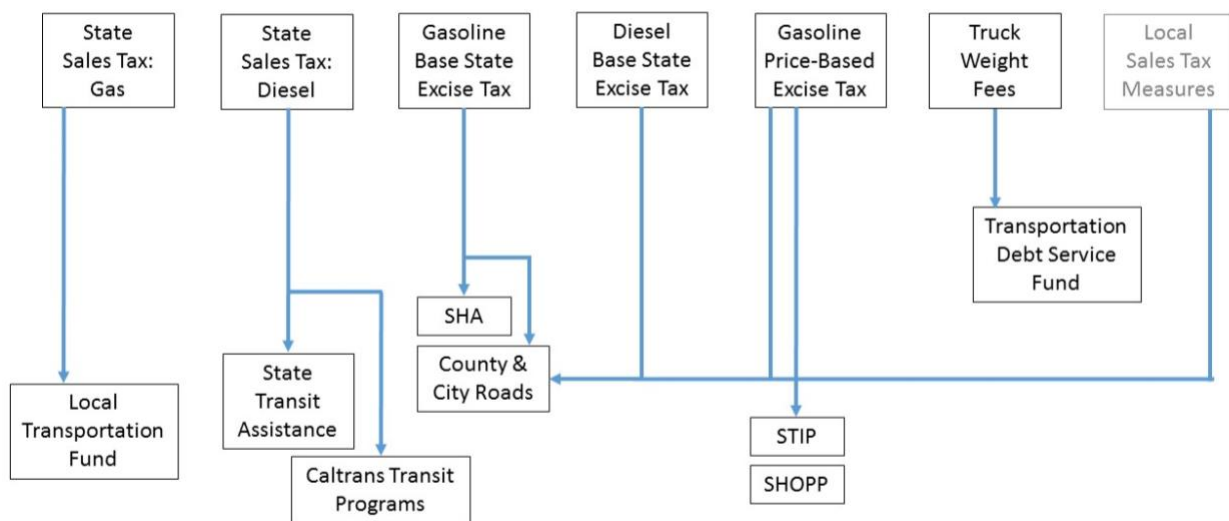


Figure 1. California’s Transportation Revenue Sources and Where They Flow

A Course Correction Towards Fiscal Sustainability with Allegiance to Inherited Allocations

Overall, the picture that emerges of transportation funding in California suggests that its current distributional framework attends far more to inherited claims than to current policy objectives. Major pots of funding have been divided among recipients following many different motives (Giordano, 2007), not a unified distributional rationale and not climate action. The proceeds of the individual revenue sources outlined above have been divided over time to satisfy claims that follow different geographic, jurisdictional, or modal lines or that reflect population shares. Further, distributional solutions have largely been ad hoc, incremental, iterative, and layered atop one another to produce a system that is too complex to penetrate for all but the most seasoned transportation finance experts.

The state's recent Road Repair and Accountability Act (SB 1), enacted in 2017, makes some encouraging changes to the state revenue picture. As noted above, the new law made numerous adjustments to the state's own-source transportation revenues, and on one hand, it has in part enhanced fiscal sustainability for California transportation funding. SB 1 increased state transportation funding, and it unraveled the disastrous California "fuel tax swap" that had led to severe funding instability since its 2010 introduction. On the other hand, however, the new legislation retained existing structures for allocating state funds and made few changes to explicitly reward sustainable transportation or to encourage investments that will secure a less automobile reliant future above all.

On the positive side, SB 1 is anticipated to increase state revenues for transportation by an average of \$5.2 billion annually over the next decade (Legislative Analyst Office, 2017). The law also eliminated the "fuel tax swap." The legislature initiated the swap in 2010 to replace California's sales tax on gasoline with a new increment of per gallon excise tax on gasoline, to be added to the existing 18-cpg excise tax. Legislators had aimed to shift revenues away from the state sales tax on gas, levied on the price of a gasoline sale, to the fuel excise tax, levied per gallon on the volume of sale. Because the state sales tax is not constitutionally restricted to transportation spending, it had proven vulnerable to diversion by state leaders to meet other non-transportation state needs during economic crises. The state constitution reserves the fuel excise tax, however, exclusively for transportation expenditures, making it more secure than a sales tax on fuels.

The fuel tax swap ultimately produced severe instability in transportation revenues, however, and negatively impacted state transportation entities reliant upon them. Legislated to be revenue neutral, the swap required that the new increment of per gallon excise tax produce no more or less than the gas sales tax it replaced. The state would estimate the annual per gallon rate to mirror anticipated gasoline sales tax revenues, given anticipated fuel prices. When the real gasoline prices went below or above state estimates, however, the state would adjust the price-based excise tax rate post hoc for the next year, to account for any shortfall or deficit that the tax had produced. The swap had created significant problems for state transportation funding and the entities that administer it (Wachs, Brown & Garrett, 2016).

The Disposition of State Transportation Revenue: The View from Chart C

The previous section accounted for the own-source revenue sources that California collects for transportation; we now turn to how the state distributes those revenues. Specific instructions written into state statute and code, as referenced in Table 1, determine the flow of revenues and typically shunt revenues to initial holding accounts and subsequently to other more specific accounts often defined by or dedicated to a set of transportation purposes. The state's Chart C captures the flow of funds through accounts in detail, and we provide a simplified version in Figure 1. Revenues from most sources are divided and subdivided, and sometimes recombined with funds from other revenue sources several times before the dollars reach their ultimate recipients for expenditure.

We researched the statutory instructions and decision rules that are used to allocate these revenue sources over a series of stages. We then applied these to the projected revenues for FY 2016-17 to provide an example of how and at what split or phase of allocation the different instructions apply, as shown in Table 2 and, pictorially, in Figure 2.

Our analysis of the distribution of state transportation revenues shows that a handful of key allocation “rules of thumb” govern how the state distributes its resources. These principles most commonly consider a jurisdiction’s or region’s population, the number of centerline miles of roadway, grandfathered distinctions grouping California counties into North (Group 1) and South (Group 2), numbers of registered vehicles, and an often repeated city and county formula (Assembly Committee on Transportation, 2008).

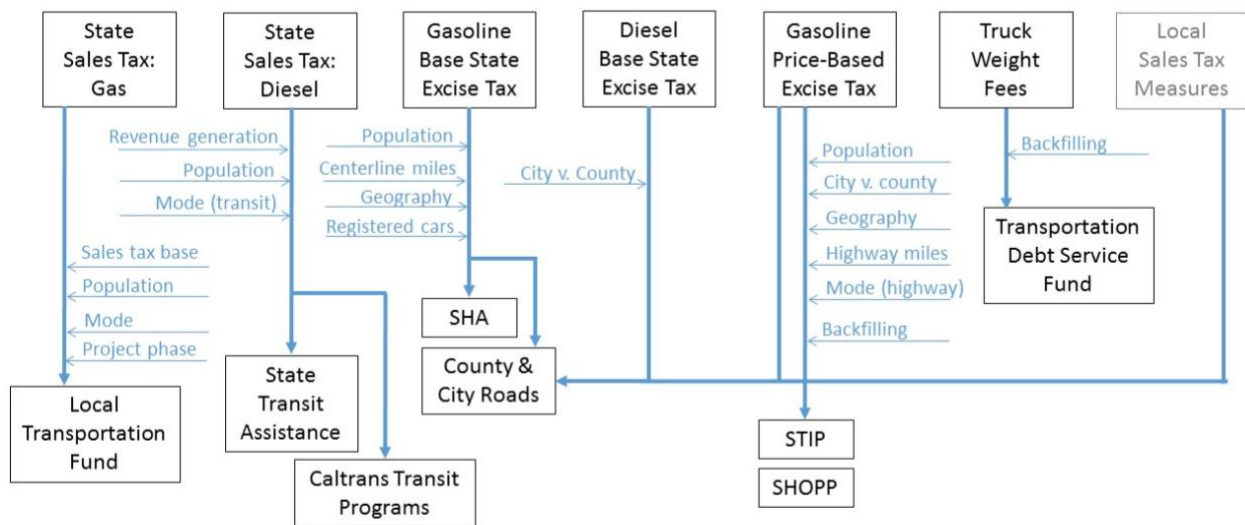


Figure 2. The Basis for Allocation of California Transportation Revenues

This mapping of transportation revenues and their distribution suggests both the complexity of California’s transportation finance picture and the disconnect between high-level (in contrast to project level) resource allocation and the state’s GHG and climate objectives. Patterns of allocation reflect myriad incremental decisions that have accrued over decades to direct revenues from different sources. None of the allocation principles take into account the performance or promise of different modes or different jurisdictions for shrinking automobile use and GHGs.

Table 1. Chart C Revenue sources, legal bases, revenue rate and absolute revenues**

**Does not reflect changes enacted under the 2017 Road Repair and Accountability Act (SB 1)

Source	Legal Basis	Rate	Revenue 2015-2016	
Statewide sales and use tax (0.25% for local transportation projects)	<i>Transportation Development Act (1971); Proposition 30 (2012)</i>	7.5% total		
a. Gasoline	AB 105 (2011)	2.25% (only 0.25% for transportation)		<ul style="list-style-type: none"> • 0.25% of the 2.25% state sales tax collected on gasoline goes to counties exclusively for transportation purposes (not general fund purposes) via Local Transportation Fund. The state BOE distributes county shares in proportion to what they generate. http://www.boe.ca.gov/legdiv/localTaxAllocations.htm
b. Diesel	<i>RTC, Sections 7101 - 7107, 6051.8, 6201.8, & 6357.3</i> Proposition 22 (2010)	9.25%	\$616 million	<ul style="list-style-type: none"> • 4.75% split equally between the state & STA for local transit agencies • 1.75% goes to PTA then to State Transit Assistance fund (STA) for ops & capital (equal amounts get lowered through excise for what goes to SHA)
Gasoline base state excise tax	<i>RTC, Sections 7360(a)(1), 8651(a)(5) & 7392</i> <i>Proposition 111 (1990)</i>	18 cents per gallon	\$2,793 million	Revenues deposited to Highway Users Tax Account & distributed: <ul style="list-style-type: none"> • 36% City & county road funds (subvention) • 64% State (State Highway Account)
Diesel base state excise tax	<i>RTC Sections 60050(b)(1) - (2) & 6201.8</i>	Variable* (11 cents per gallon in FY 14/15; 13 cents per gallon in FY 15/16)	\$418 million	<ul style="list-style-type: none"> • Revenues deposited to Highway Users Tax Account. The first six cents are apportioned to cities and counties; the balance is transferred to the State Highway Account.

Table 1. Continued

Source	Legal Basis	Rate	Revenue 2015-2016	
Gasoline price-based excise tax	<i>RTC, Sections 7360(b)(1); ABx8-6, SB 70 (2010); AB 105 (2011)</i>	Variable* (18 cents per gallon in FY 14/15; 12 cents per gallon in FY 15/16; 9.8 cents per gallon in FY 16/17)	\$1,699 million	<ul style="list-style-type: none"> • Revenues used first to back fill weight fees diverted to General Fund. Remaining funds allocated to: <ul style="list-style-type: none"> ○ 44% Local roadways ○ 44% STIP (new construction) – deposited to SHA ○ 12% SHOPP (hwy maint & ops) - deposited to SHA
Truck weight fees	<i>Vehicle Code, Sections 9400 - 9410 & 42205(a)</i>	Based on gross weight of commercial vehicles	\$1,015 million	Deposited to SHA & transferred to Transportation Debt Service Fund to reimburse the General Fund for debt service on voter-approved transport bonds.
Motor vehicle registration and driver license fees	<i>Vehicle Code, Sections 9250 - 9271 (Motor Vehicle Reg); 14900 & 14900.1 (Driver's Lic), 38225, 38225.4, 38225.5 & 38230 (Off-Highway Vehicle Registration), 1678 & 1685</i>	\$46 motor vehicle registration; \$52 off-highway registration; \$33 driver license fee	\$3,107 million	Deposited to Motor Vehicle Account to fund the California Highway Patrol for traffic enforcement.
Motor vehicle license fees	<i>RTC, Sections 10751 – 10760</i>	0.65% of market value of vehicles, as determined by the DMV	\$567 million	Deposited to Motor Vehicle License Fee Account to support Department of Motor Vehicles regulatory functions.

Table 2. California's state-generated transportation resources and their statewide distribution (FY 2016-17)*

*Does not reflect the 2017 Road Repair and Accountability Act.

Revenue Source	Share of total	FY16-17 (millions)	1st Split- Basis for Allocation	Share of total	1st Split Amount (millions)	2nd Split - Basis for Allocation	Share of total	2nd Split Amount (millions)	3rd Split - Basis for Allocation	3rd Split Amount (millions)	4th Split - Basis for Allocation	4th Split Amount (millions)
Statewide sales and use tax: Diesel	5.3%	\$616	4.75% split equally between STA and state 1.75% to STA	3.8%	\$450	50% to Caltrans State Transit program 25% to RTPAs (via STA) 25% to transit operators (via STA) 50% by population share 50% by transit revenue share	1.9% 1.0% 1.0% 0.7% 0.7%	\$225 \$113 \$113 \$83 \$83	100% by population 100% by revenue generation	\$113 \$113		
Gasoline base state excise tax	23.9%	\$2,793	36% to cities & counties 64% to SHA	8.6%	\$1,005	50% to cities 50% to counties 100% for SHOPP	4.3% 4.3% 15.3%	\$503 \$503 \$1,788	100% by population 75% by registered vehicles 25% by centerline miles 45% to Group 1 Counties (North) 55% to Group 2 Counties (South)	\$503 \$377 \$126 \$804 \$983		
Diesel base state excise tax FY15-16 = \$0.13/gal	3.6%	\$418	First \$0.06 to cities & counties Balance (\$0.07) to SHA	1.6%	\$193	50% to cities statewide 50% to counties Balance reserved for State Highway Account	0.8% 0.8% 1.9%	\$96 \$96 \$225	100% by population 75% by registered vehicles 25% by centerline miles	\$96 \$72 \$24		
Gasoline price-based excise tax	14.5%	\$1,699	Weight Fee Backfill 44% to STIP for capacity 12% to SHOPP (hwy ops & maint) 44% to city & county road funds	8.7%	\$1,015	Cut off the top before the following allocations: 75% to RTIP 25% to Interregional TIP – Caltrans 100% to SHOPP 50% to cities 50% to counties	8.7% 1.9% 0.6% 0.7% 1.3% 1.0% 0.3%	\$1,015 \$226 \$75 \$82 \$150 \$113 \$38	40% to Northern Counties 60% to Southern Counties 25% Interregional TIP – Caltrans 100% to SHOPP 100% by population 75% by registered vehicles 25% by centerline miles	\$90 \$135	75% by population 25% by highway miles 75% by population 25% by highway miles	\$68 \$23 \$102 \$34
Truck weight fees	8.7%	\$1,015		8.7%	\$1,015	Funds Transportation Debt Service to reimburse General Fund	8.7%	\$1,015				
Motor vehicle reg. & driver license fees	26.5%	\$3,107		26.5%	\$3,107	Funds California Highway Patrol	26.5%	\$3,107				
Motor vehicle license fees	4.8%	\$567		4.8%	\$567	Funds Department of Motor Vehicles	4.8%	\$567				
Statewide sales tax: Gasoline (0.25%)	12.7%	\$1,488	0.25% for county local transp. funds	12.7%	\$1,488	100% to county TPAs by tax revenue generation for transit. TPAs to counties by population.	12.7%	\$1,488				
	100%	\$11,703		100.0%	\$11,703		100.0%	\$11,703				

Potential Reforms

California invests significant sums each year in its transportation system. How might state policymakers allocate state revenues for transportation investments in ways that advance California's goals to reduce GHG emissions and motor vehicle dependence? What impact might those sums have if directed to advance SB 375 implementation, by rewarding efforts to reduce driving and GHGs?

Current allocation practices for transportation dollars reflect largely inherited formulae, negotiated over decades to broker the politics of modal siloes, geographical/jurisdictional divides, and competition from state needs outside transportation. Current allocation practices do not support the establishment or growth of communities oriented toward reduced auto reliance or alternative modes of travel, and some view the formulae as "antiquated" (Chen & Rehman, 2015).

The state revenue sources accounted for here generate about \$5-6 billion annually for transportation investments. (FY 2016-17 revenues are estimated at \$11 billion in Table 2, for example, minus the roughly \$5 billion from registration, license, and truck fees reserved for the California Highway Patrol, the Department of Motor Vehicles, and debt service reimbursements to the General Fund.) And the 2017 SB 1 will add about another \$5 billion annually in transportation revenues. Consider the impact of these sums, if harnessed to reward GHG reductions and reduced automobile reliance. By comparison, California appropriated \$1.4 billion from the Greenhouse Gas Reduction Fund in FY 2015-16 for programs to reduce GHG emissions. How can it better align expenditures of these revenues on transportation with state policy goals, such as sustainable communities and GHG reduction? We offer for discussion several adjustments to transportation revenue allocation that state policy makers could implement.

Allocate more state transportation revenues to MPOs.

Statutory reforms could allocate state transportation funds to better support SB 375 by giving metropolitan planning organizations (MPOs) responsibility for allocating a far greater share of state generated transportation revenue. Current laws place many "regional" allocation decisions with county-based County Transportation Commissions. Under SB 375, however, MPOs craft the land use visions, or Sustainable Communities Strategies, designed to focus regional development around a more sustainable and transportation efficient future, and structurally MPOs are more regional in nature.

Reward regional performance on near-term GHG reduction.

A further step could allocate proportionally more funds to MPOs that move aggressively to realize near-term GHG reductions. An MPO's "transportation investment program" shows the specific near-term expenditures that region will make to implement its long range regional transportation plan and Sustainable Communities Strategy (RTP/SCS). SB 375 requires MPOs' longer-term plans to show how the region will meet or exceed regional GHG reduction targets,

but there is no similar requirement for the near-term projects funded in the investment program (TIP). A regional plan/SCS may include a mix of future transit, bicycle, pedestrian, road, and highway projects, but the MPO is free to invest exclusively in highway expansion projects in the near term and to delay GHG-reducing projects like transit and active transportation to later years. Allocation formulae could reward MPOs that deliver GHG reductions sooner rather than later. Regional performance metrics could also consider the lifecycle costs of proposed transportation investments, to reward those regions that prioritize the maintenance and repair of existing facilities over costly system expansions (Kahn & Levinson, 2011).

Develop and use sustainability performance criteria for broader allocation.

The legislature could also allocate state transportation funds to reflect performance on progress toward meeting its climate policy goals. The State of Virginia recently recast its own approach to allocating transportation dollars, though not oriented toward climate goals; the state now requires funding allocations to be performance-based and to reflect maintenance of the existing transportation system. California could also look to other in-state GHG reducing programs for distributional models. The state's Affordable Housing and Sustainable Communities (AHSC) program, for instance, funded by the Greenhouse Gas Reduction Fund, allocates program dollars competitively using multidimensional performance metrics and policy objectives, as shown in Table 3. The AHSC program is outcome-driven, funding projects that use infill and compact development to reduce VMT and GHG emissions with fewer or shorter passenger vehicle trips. To award funds, candidate projects are scored against specific criteria and policy goals.

To address sustainability impacts of its transportation investments on the whole, California could consider similarly performance-based metrics for its annual transportation revenue allocations. State transportation funds could be used to reward jurisdictions that improve job accessibility by non-single occupant vehicle modes, for instance, by increasing the number of jobs that residents can reach by public transit, walking, and/or cycling. Further, performance-based allocation criteria could assess transportation accessibility among "disadvantaged communities" or "communities of concern", echoing state policies to allocate Greenhouse Gas Reduction Fund dollars in socially equitable ways. Accessibility indicators could be used to reward jurisdictions that enhance mobility options and access to economic, social, and educational opportunities for vulnerable communities (Karner & London, 2014).

Table 3. Project Criteria for AHSC Funds, 2015

Scoring Element	Criteria	Percent of Score
GHG Reduction	Estimated GHG emissions reduction per grant dollar requested	55%
Feasibility & Readiness	Capital project past performance	15%
	Capital project readiness, capacity, need and leverage Capital project funds leveraged Implementation of previous planning efforts	
Policy Objectives	Accessibility to qualified employment areas	30%
	Extent to which the project area incorporates walkable corridors	
	Extent to which the project area incorporates features which encourage bicycling	
	Extent to which the housing development serves lower- and moderate-income households	
	Extent to which the project addresses co-benefits Anti-displacement strategies Community engagement	

Allocate state revenues to incentivize sustainable locals sales tax measures.

In considering how California might allocate transportation funds to better reflect sustainability goals, it is important to note the growing role that *local* sales tax dollars play in funding the state’s transportation infrastructure. In 1987, the California legislature enabled all counties to adopt sales taxes to fund transportation improvements, making local sales tax revenues an important source of transportation investment in the state. California’s Self-Help Counties Coalition estimates local sales tax measures generate \$3-4 billion per year in transportation investments.

Local transportation sales tax dollars belong to California’s local governments, and state officials have little say over city and county decisions for spending those locally generated tax dollars. From a climate action perspective, however, sales taxes are “the 800-pound gorilla in the room” (Rose, 2011, 20), and state policymakers need to consider to them.

For one, though local tax measures are vital to transportation investment in the state, they may also “limit MPOs’ ability to meet SB375 targets if their expenditure plans are focused on accommodating automobiles” (Rose, 2011, 22). California’s SB 375 asks metro regions to meet GHG reduction targets through Sustainable Communities Strategies for land use and transportation; yet, it also exempts transportation projects linked to pre-2011 local sales tax expenditure plans from any evaluation of progress toward GHG targets. Hence, the GHG impacts of many local-tax funded projects are not scrutinized.

To ensure that locally generated tax revenues for transportation will further GHG reductions and the objectives of California’s SB 375 objectives and its regional SCSs, state policymakers could revise the state statute authorizing local sales tax adoption to:

1. require that a significant share of revenue generated by any new or renewed local sales tax measures be expended on GHG-reducing projects that implement an SCS; and
2. lower the voter approval threshold for sales tax measures *if* they are linked to tax expenditure plans prioritizing GHG reducing projects that implement an SCS.

Additionally, state legislation could phase out the exemption SB 375 granted to local voter-approved transportation projects in sales tax measures adopted before December 31, 2010. A region's RTP/SCS analysis would then have to show that such projects, added to tax expenditure plans years or decades ago, do not jeopardize achievement of regional GHG targets.

Alternatively, state legislation could reward local governments that voluntarily revise existing sales tax expenditure plans (with voter approval, if required) to eliminate grandfathered projects that would hinder SCS implementation and GHG reductions.

Recasting Transportation Revenue Allocation: Benefits for California and Other States

This paper has applied a sustainability lens to its review of how California allocates transportation revenue. While focused on California, it highlights lessons that extend to other states that would further integrate sustainability objectives into state transportation activities. While California may be moving more aggressively to integrate climate action and GHG reduction into transportation planning and project development, a number of other states have taken initial steps to do so as well. At least 20 states—from Washington to Arizona, to New Jersey—have adopted multi-sector GHG reduction goals.¹ Some already have legislation or guidance in place for integrating GHG analysis into transportation planning or into project-level environmental analysis (Batac et al., 2012; Kenney et al., 2014). Further, regional and state actors have been working independently to bring climate concerns into metropolitan transportation policy and planning. Some MPOs, including those serving the Atlanta, Boston, Denver, Miami-Dade, and the Washington, D.C. metro regions, have begun to either establish their own GHG targets, to use GHG analysis in planning, or to plan for adapting infrastructure to such climate impacts as increased flooding.

What almost no state has done, however, is connect the allocation of state transportation dollars to climate action. There is scant evidence that state policymakers even consider whether statutory and programmatic frameworks governing the distribution of state transportation dollars reflect climate considerations or goals.

¹ The 20 states with GHG emissions goals are Arizona, California, Colorado, Connecticut, Florida, Hawaii, Illinois, Maine, Maryland, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New Mexico, New York, Oregon, Rhode Island, Vermont, and Washington. Center for Climate and Energy Solutions, <http://www.c2es.org/us-states-regions/policy-maps/emissions-targets>.

At the same time, California and a growing number of states are revisiting how they pay for transportation, and such movements provide an opening to better connect the distribution of state transportation revenues to state sustainability goals. Diminishing state and federal funding for transportation over the last decade has driven many states to rethink how to enhance transportation revenue. The U.S. Congress communicated its continued unwillingness to increase traditional federal revenues in the 2015 federal transportation authorization, the Fixing America's Surface Transportation Act (FAST Act). The law instead used U.S. general fund revenue and other budgetary shuffles to keep the Highway Trust Fund solvent, repeating strategies Congress has used since the mid-2000s. Congress has transferred \$143 billion since 2008 from the general fund and other sources to maintain a positive balance in the Fund (Congressional Budget Office, 2016), and in 2015 the Government Accountability Office again included the Trust Fund on its High Risk List report to Congress (2015). As states reconsider the revenue mechanisms they might use to replace fading federal support, they have an opportunity to revisit state revenue allocation practices too.

In December 2017, California released the results of a two-year study examining a potential transition to distance-based fees to pay for transportation (California State Transportation Agency, 2017). If VMT-based road user charges were to replace existing fuel taxes as the state's principal transportation revenue, possibly replacing per gallon excise taxes and other revenues currently used to fund transportation infrastructure, how should those funds be allocated? Thus far, the state has focused on operation questions surrounding establishment of a road user charging system. To implement such a program, the state would also have to address questions about how to distribute the revenues it generates.

Should California simply recreate the existing distributional pattern for road charges—or any other new revenue source? We argue that California—and other states recasting transportation revenues—would squander a valuable opportunity by relying on the outdated allocation formulae representing incremental policy adjustments made years ago. Between 2012 and 2015, 23 U.S. states passed legislation to increase their own transportation revenues. While some also chose to revise corresponding laws and policies governing the distribution of those revenues, many others largely left in place the same distributional frameworks inherited over decades (Transportation for America, 2017; McAndrew 2016).

We argue instead that states move gradually but boldly to devise resource allocation policies that better reflect 21st century visions for sustainable transportation and that better serve the environment, the economy, and society. Recasting state revenue sources and their distribution will introduce change and uncertainty and must be done slowly. A new GHG-reducing state allocation scheme would necessarily alter both the cast of traditional claimants of state revenues and the amounts they receive. Such changes can be managed with thoughtful policy. Failing to include GHG considerations when annually distributing billions in state transportation resources, in contract, threatens to sustain the very patterns of automobile dependence and associated climate impacts that California policy is aiming to reverse.

Appendix A. The Regional View: Funding Sources Used by Regions

The Federal State Transportation Improvement Plan (FSTIP) is published by Caltrans and reports transportation projects receiving federal or state dollars, as well as projects “of regional significance.” It aggregates regional transportation improvement programs (RTIPs) that are reported by metropolitan planning organizations (e.g., San Francisco Bay Area Metropolitan Transportation Commission, San Diego Association of Governments) to Caltrans. FSTIPs are most accurate for determining federal and state transportation expenditures, as solely locally-funded projects are often below the threshold of “regional significance” and are only approximated, if accounted for at all, in a region’s TIP.

The FSTIP accounts for both transportation funding sources and expenditures. Table A-1 represents the funding source by governmental level for California transportation projects programmed for funding in Fiscal Year 2013-14. Analyzing the FSTIP in this way shows that local funding sources (e.g., funds from locally generated sales taxes) account for an overwhelming majority of programmed expenditures.

Why do Chart C and the FSTIP tell different stories? Chart C accounts for all the state-levied transportation revenues collected in California in a given fiscal year. In contrast, the FSTIP is a so-called “programming” document that shows the funding amounts and sources (including – *but not exclusively* – state funds) to be expended for specific projects in a given fiscal year. Some funding sources or funding programs in the FSTIP rely on the underlying revenue streams represented in Chart C (summarized in Table A-2), but the amounts are not equal. Rather, revenues published in FSTIPs are a summary of the revenue sources for projects that are currently in MPOs’ Transportation Improvement Plans (TIPs). Expenditures over time will expand and contract as large projects move through phases of planning, programming, and construction.

Table A-1. FY 2013-14 FSTIP Revenues by Source, in thousand dollars

Source	"Color"	Amount	Total	Percent of Total
Federal	Federal Highway Administration	\$1,474,526	\$2,894,795	17%
	Federal Transit Authority	\$1,420,269		
Local	Gas Tax	\$198,404	\$9,796,692	58%
	Other	\$3,712,433		
	Other Local Funds	\$2,107,770		
	Sales Tax	\$2,690,387		
	Tolls	\$103,197		
	Transit Fares	\$984,501		
Regional	Other	\$500	\$705,457	4%
	Sales Tax	\$54,308		
	Tolls	\$599,848		
	Transit Fares	\$28,056		
	Vehicle Registration Fees	\$22,745		
State	GARVEE Bonds (Includes Debt Service Payments)	\$79,437	\$3,540,108	21%
	Highway Maintenance (HM)	\$4,840		
	Other	\$18,231		
	Proposition 1A	\$68,433		
	Proposition 1B	\$603,621		
	State Emergency Repair Program	\$100		
	State Highway Operations and Protection Program (SHOPP)	\$1,769,614		
	State Transit Assistance (STA)	\$176,824		
	State Transportation Improvement Program (STIP)	\$646,933		
Traffic Congestion Relief Program (TCRP)	\$172,075			
Total		\$16,937,052	\$16,937,052	100%

Table A-2. Chart C Apportionments by Revenue Source, in million dollars

Apportionment	Sources	Amount	Total	Percent of Total
Local Transit (via state)	Statewide sales and use tax: Diesel	\$158	\$158	1.4%
Local Transit (via STA)	Statewide sales and use tax: Diesel	\$158	\$158	1.4%
Transit Operations & Capital (via STA)	Statewide sales and use tax: Diesel	\$117	\$117	1.0%
City & Co Road Funds	Gasoline Base State Excise Tax	\$1,005	\$3,469	30.1%
	Diesel Base State Excise Tax	\$22		
	Gasoline Price-Based Excise Tax	\$748		
	TDA* Statewide Sales & Use Tax on Gasoline (.25%)	\$1,488		
State Highway Account	Gasoline Base State Excise Tax	\$1,788	\$1,978	17.2%
	Diesel Base State Excise Tax	\$190		
State Transportation Improvement Program	Gasoline Price-Based Excise Tax	\$748	\$748	6.5%
State Highway Operation & Protection Program	Gasoline Price-Based Excise Tax	\$204	\$204	1.8%
Transportation Debt Service Fund	Truck Weight Fees	\$1,015	\$1,015	8.8%
CA Highway Patrol	Motor Vehicle Registration & Driver License Fees	\$3,107	\$3,107	27.0%
Dept. of Motor Vehicles	Motor Vehicle License Fees	\$567	\$567	4.9%
Total		\$11,519	\$11,519	100%

*Transportation Development Act.

Appendix B. The Local View

Neither Caltrans' Chart C nor the FSTIP provide a complete picture of local transportation revenues, which account for a growing majority of transportation expenditures. The FSTIP includes some locally generated transportation funds, but only those that are programmed to help pay for federally-funded projects (e.g., local matching funds on federalized projects) and for regionally significance projects. A more detailed description of local transportation funding is published by the California State Controller's Office in the Local Streets and Roads Report. These revenues and expenditures are reported to the state by each local government.

The accounting process in the Local Streets and Roads Report produces a chart that looks roughly similar to the FSTIP—local revenues are the greatest, followed by state and then federal revenues (Table B-1). The smaller slice of federal funds makes sense intuitively; federal and state dollars are often spent on federal and state projects that do not make it to the local street level, and fewer local street projects are big enough to be an efficient use of federal dollars. This view also illustrates the difficulty in tracking transportation finances: the local revenues accounted in the FSTIP are roughly double those accounted in the Local Streets and Roads Report. The gap may have a few accounting explanations: The Local Streets and Roads Report captures only funds spent on locally owned roads and may not capture locally-funded investments on the state highway system, even though those investments are funded by local sales tax dollars. Another explanation could be that the Local Streets and Roads Report does not capture transit investments, which are often funded by local sales tax measures. Regardless, this demonstrates a general funding schema, as much as the complexity of the schema per se.

In considering how California might allocate transportation funds to better reflect its sustainability and GHG reduction goals, it is important to understand the increasingly important role that local sales tax dollars have played over the last few decades. In 1987, California passed blanket legislation enabling all counties to adopt sales taxes to fund transportation improvements. Today, local sales tax revenues are a prominent and increasingly important source of transportation investment in the state. California's Self-Help Counties Coalition estimates that local sales tax measures generate between \$3 -4 billion per year in transportation investments.

Yet, from a climate action perspective, sales taxes are “the 800-pound gorilla in the room,” according to one study (Rose, 2011, p. 20). California law SB 375 asks metro regions to meet GHG reduction targets through Sustainable Communities Strategies for land use and transportation; yet, it also exempts transportation projects linked to pre-2011 local sales tax allocation plans from evaluation of progress toward those targets, with no scrutiny of the GHG impacts of local-tax funded projects. Therefore, as much as local tax measures are vital to transportation investment in the state, they may also “limit MPOs' ability to meet SB375 targets if their expenditure plans are focused on accommodating automobiles” (Rose, 2011, p. 22).

Table B-1. FY 2013-14 Local Streets and Roads Annual Report, Money Made Available for City and County Street Purposes, in thousand dollars

Source	"Color"	Amount	Total	Percent of Total
State	Highway Users Tax Fund Under Streets & Highway Code	\$2,045,273	\$2,451,646	36%
	Motor Vehicle License (In-lieu tax)	\$34,230		
	Traffic Congestion Relief Fund	\$536		
	Other State Aid	\$371,607		
Federal	Federal	\$364,082	\$621,819	9%
	Federal Forest Reserve	\$15,394		
	Other Federal Aid	\$242,343		
Local	General Fund Money	\$1,076,210	\$3,733,167	55%
	Other City Funds	\$1,173,640		
	Gas Tax Fund Investment Income	\$6,746		
	Proceeds from Sale of Bonds	\$111,066		
	Special Street Assessment Levies	\$260,592		
	Traffic Safety Fund Money	\$37,292		
	Road Taxes	\$46,459		
	Traffic Fines and Forfeitures	\$1,745		
	Interest from Investment of Road Funds	\$6,378		
	Other General Purpose Funds	\$76,057		
	Public Utilities Code	\$130,873		
	Other Local Sources	\$735,548		
	Other Counties, Cities and Districts	\$70,561		
Total		\$6,806,632	\$6,806,632	100%

References

- Assembly Committee on Transportation. (2008). *Bill Analysis AB 1904 - Transportation Programming: County Shares*. Sacramento, CA Retrieved from ftp://www.leginfo.ca.gov/pub/07-08/bill/asm/ab_1901-1950/ab_1904_cfa_20080417_131852_asm_comm.html.
- Batac, T., Schattaneck, G., and Meyer, M. D. (2012). NCHRP 08-36, Task 107: Synthesis of State DOT and MPO Planning and Analysis Strategies to Reduce Greenhouse Gas Emissions. Retrieved from San Francisco, CA: [http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP08-36\(107\)_FR.pdf](http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP08-36(107)_FR.pdf)
- Booz Allen Hamilton. (2014). *Sustainability as an Organizing Principle for Transportation Agencies* (NCHRP Report 750, Volume 4). Retrieved from Washington, D.C.: http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_750v4.pdf
- California Air Resources Board. (2017). California Greenhouse Gas Emission Inventory: 2000-2015. Retrieved from https://www.arb.ca.gov/cc/inventory/pubs/reports/2000_2015/ghg_inventory_trends_00-15.pdf
- California Air Resources Board. (2016). *Mobile Source Strategy*. Retrieved from <http://www.arb.ca.gov/planning/sip/2016sip/2016mobsrsrc.htm>
- California Executive Order No. S-3-05 (June 1, 2005), <http://gov.ca.gov/news.php?id=1861>
- California Executive Order No. B-30-15 (April 29, 2015), <http://gov.ca.gov/news.php?id=18938>
- California State Transportation Agency. (2017). California Road Charge Pilot Program: Final Report. Sacramento, CA Retrieved from http://www.dot.ca.gov/road_charge/resources/final-report/docs/final.pdf.
- Campbell, S. (1996). Green Cities, Growing Cities, Just Cities? Urban Planning and the Contradictions of Sustainable Development. *Journal of the American Planning Association*, 62(3), 296-312.
- Chen, P., and Rehman, W. (2015). Gas Tax Overview - Presentation to the Streets and Freeways Subcommittee. Los Angeles County Metropolitan Transportation Authority Retrieved from https://media.metro.net/about_us/committees/sfs/images/sfs_presentation_2015_0416_gast_ax.pdf
- Congressional Budget Office. (2016). *Approaches to Make Federal Highway Spending More Productive*. Washington, D.C. Retrieved from https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/50150-Federal_Highway_Spending-OneCol.pdf

Dawe and Ryan (2003). The Faulty Three-Legged-Stool Model of Sustainable Development. *Conservation Biology*, 17(5), pp. 1458-1460.

Dougherty, M. (2015). *Sustainability Policy*. Sacramento, CA Retrieved from http://www.dot.ca.gov/hq/sustainability/dp_33.pdf.

Elkington, J. (1998). *Cannibals with Forks: The Triple Bottom Line of 21st Century Business* (The Conscientious Commerce Series).

Federal Highway Administration (FHWA), U. S. Department of Transportation. (2016). *National Performance Management Measures*. (Docket No. FHWA-2013-0054, RIN 2125-AF54). Washington, D.C.: Federal Register Retrieved from https://www.fhwa.dot.gov/tpm/rule/pm3_nprm.pdf

Federal Highway Administration (FHWA), U. S. Department of Transportation. (2017, January 18). National Performance Management Measures; Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program (23 CFR Part 490). *Federal Register*, 82, 5970-6050.

Giordano, R. (2007). *Statutory Policy and Financing from 1977 through 2006: Thirty Years of California Transportation Legislation*. University of California, Davis, CA.

Kahn, M. E., and Levinson, D. M. (2011). Fix It First, Expand It Second, Reward It Third: A New Strategy for America's Highways. *The Hamilton Project Update, 2011-03*. Retrieved from http://www.hamiltonproject.org/assets/legacy/files/downloads_and_links/Final_KAHNDiscussP aper_Feb2011.pdf

Karner, A., and London, J. (2014). Rural Communities and Transportation Equity in California's San Joaquin Valley. *Transportation Research Record: Journal of the Transportation Research Board*, 2542, 90-97. doi:10.3141/2452-11

Kenney, M., Castro, M., Ramani, T., Zietsman, J., Bhat, C., Farzaneh, R., . . . Narayanamoorthy, S. (2014). *Incorporating Greenhouse Gas (GHG) Emissions in Long Range Transportation Planning*. Retrieved from Austin, TX: <http://tti.tamu.edu/documents/0-6696-1.pdf>

Taylor, M. (2017). *Overview of the 2017 Transportation Funding Package*. Retrieved from Sacramento, CA: <http://www.lao.ca.gov/Publications/Report/3688>

McAndrew, J. *Twelve Innovations in Transportation Policy States Should Consider in 2016*. Washington, D.C.: Transportation for America. Retrieved from <http://t4america.org/wp-content/uploads/2016/01/12-State-Policies-for-2016.pdf>

Mikesell, J. (2011). *Fiscal Administration: Analysis and Applications for the Public Sector*, 8th edition. Harcourt Brace.

National Cooperative Highway Research Program. (2014). *A long-term view of sustainability*. Retrieved from Washington, D.C.: www.trb.org/CRP/NCHRP/NCHRPImpacts.asp

Rose, E. (2011). *Leveraging a New Law: Reducing greenhouse gas emissions under Senate Bill 375*. Retrieved from Berkeley:
<http://www.crec.berkeley.edu/Leveraging%20a%20New%20Law.pdf>

Schank, J. and Rudnick-Thorpe, N. (2011). End of the Highway Trust Fund? *TRR*, No. 2221, pp. 1-9.

Transportation for America. (2017). State Transportation Policy and Funding. Retrieved from <http://t4america.org/maps-tools/state-policy-funding/>

U.S. Environmental Protection Agency. (2017, March). Sources of Greenhouse Gas Emissions. Retrieved from <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>

U.S. Government Accountability Office. (2015). *High Risk Series: An Update* (GAO-15-290). Washington, D.C.: Retrieved from <http://www.gao.gov/assets/670/668415.pdf>

Wachs, M., Brown, A., and Garrett, M. (2016). *The California Fuel Tax Swap*. Retrieved from Berkeley, CA: <http://escholarship.org/uc/item/7877815v>

World Commission on Environment and Development. (1987). *Our Common Future*. Retrieved from <http://www.un-documents.net/ocf-ov.htm#I>